

Fimbrial Ectopic Pregnancy Following Tubal Anastomosis

Oscar D. Almeida, Jr., MD

ABSTRACT

The incidence of ectopic pregnancy in the general population is approximately 1%. This risk increases to 5% following tubal anastomosis. Ectopic pregnancy may cause life-threatening hemorrhage. Morbidity and mortality associated with an extrauterine pregnancy are directly related to the length of time required for diagnosis and treatment. Laparoscopy is the gold standard for surgical management in these cases. This report deals with the case of a rare form of ectopic pregnancy following tubal anastomosis.

Key Words: Laparoscopy, Ectopic pregnancy, Fimbrial ectopic pregnancy, Tubal anastomosis.

INTRODUCTION

Women who regret having previously undergone a tubal sterilization procedure may attempt to have their ability to become pregnant restored by undergoing a tubal anastomosis.¹ The success rate of the anastomosis is dependent on the type of previous tubal sterilization procedure, the amount of fallopian tube excised or burned during the procedure, and any pelvic pathology present. High risk factors² for ectopic pregnancy include prior pelvic inflammatory disease, in-utero exposure to diethylstilbestrol, previous ectopic pregnancy, and prior tubal surgery, including tubal anastomosis. Ectopic pregnancies usually occur in the fallopian tubes, but may implant intraabdominally, within the uterine cornua, ovary, or cervix. Although most tubal pregnancies occur in the ampullary segment of the fallopian tube, approximately 5% grow in the fimbria of the tube (**Table 1**).³ Serial quantitative beta hCG assays when doubled over a 48-hour period are consistent with an intrauterine gestation. However, when these levels decrease or show a <53% rise in 48 hours, an extrauterine pregnancy is suspected.⁴ An atypical clinical presentation of an ectopic pregnancy in the fimbria following a tubal anastomosis procedure is presented.

CASE REPORT

A 37-year-old African-American female, gravida 5 para 3, underwent a postpartum Pomeroy bilateral tubal ligation in 1995. Desiring another child a decade later, she presented requesting a tubal anastomosis. The patient did not have a history of previous pelvic inflammatory disease, prior ectopic pregnancy, or in-utero stilbestrol exposure. Review of the pathology report from the sterilization procedure revealed "normal appearing" tube segments. On 9/3/2008, a microsurgical right tubal anastomosis was performed. The left fallopian tube was severely scarred and the remaining tube segments too small to anastomose. Following an unsuccessful 19-month period of trying to conceive, a hysterosalpingogram was obtained revealing a patent right fallopian tube. Six months later, the patient became pregnant. Due to the increased risk of ectopic pregnancy following tubal anastomosis, serial quantitative beta hCG assays were obtained revealing a decreasing trend of 496 and 364, during a 48-hour interval.

Department of Obstetrics and Gynecology, University of South Alabama College of Medicine Mobile, Alabama, USA.

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Address correspondence to: Oscar D. Almeida, Jr., MD, Clinical Professor, Department of Obstetrics and Gynecology, University of South Alabama College of Medicine, 176 Mobile Infirmary Blvd, Mobile, AL 36607, USA. Telephone (251) 431-9836, Fax: (251) 431-1223, E-mail: odalmeida@aol.com

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Table 1.
Locations and Incidence of Ectopic Pregnancy³

Site	%
Ampullary	80
Isthmic	12
Fimbria	5
Cornual/Interstitial	2
Abdominal	1.4
Ovarian	0.2
Cervical	0.2



Figure 1. Laparoscopic view of an unruptured fimbrial ectopic pregnancy.

The asymptomatic patient did not complain of pelvic pain or vaginal bleeding. Physical examination revealed a normal pelvis without masses or tenderness. Ultrasound imaging demonstrated a 2.5-cm x 2.7-cm mass extrinsic to the uterus. With decreasing beta hCG levels and a pelvic mass on ultrasound, an extrauterine pregnancy was suspected. Laparoscopic examination revealed a right fimbrial ectopic pregnancy (**Figure 1**) with an otherwise intact fallopian tube (**Figure 2**). The ectopic pregnancy, which demonstrated chorionic villi on the pathology report, was extracted from the fimbria using graspers (**Figure 3**). Estimated blood loss was approximately 25mL. An interval beta hCG assay obtained 2 weeks was negative.

DISCUSSION

Ectopic pregnancy was first described in 1693 by Busiere, during an autopsy of an executed prisoner in Paris.⁵ In 1759, Bard reported the first successful surgical treatment of an ectopic pregnancy in New York City.⁶ Since the late 1970s, laparoscopy has played an increasing role in the

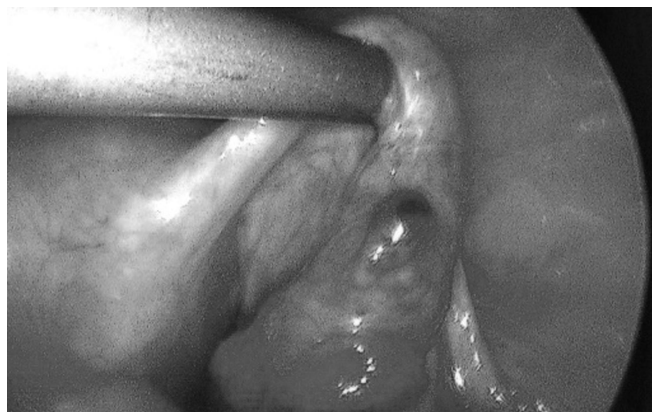


Figure 2. Intact right fallopian tube following previous tubal anastomosis procedure.



Figure 3. Laparoscopic removal of fimbrial ectopic pregnancy using graspers.

surgical management of ectopic pregnancy. In the United States, ectopic pregnancy is responsible for 2% of first trimester pregnancies and 6% of all pregnancy related deaths.⁷ Ectopic pregnancy in the fimbria is rare, occurring in only 5% of cases. Once a patient has a positive pregnancy test following a tubal anastomosis, the initial objective becomes to rule out an ectopic pregnancy. Tubal anastomosis procedures can alter the tubal environment, impairing the embryo-tubal transport mechanism. An extrauterine pregnancy is suspected in cases demonstrating a decrease in the quantitative beta hCG levels or a <53% rise in 48 hours.

The most interesting features of this case are 2-fold: First, the site of implantation of the ectopic pregnancy in the tubal fimbria is rare. Second, the early diagnosis of the ectopic pregnancy secured solely on risk factors, as the patient was completely asymptomatic, highlights the importance of hav-

ing a high index of suspicion for the possibility of a tubal ectopic pregnancy following a tubal anastomosis.

The initial workup revealed a decreasing quantitative beta hCG trend and a normal pelvic examination. However, ultrasound imaging did reveal a small mass extrinsic to the uterus. The reason that surgery was undertaken in this patient rather than methotrexate is because she had a previous tubal anastomosis that was patent on hysterosalpingogram 6 months earlier. With the patient having only one viable fallopian tube, it was important to visualize the integrity of that tube. Without a definitive diagnosis of an ectopic pregnancy, it is suggested not to use the folic acid antagonist methotrexate to eradicate the trophoblastic tissue, because medical therapy is inappropriate.⁸ Both medical and surgical treatment options exist to treat ectopic pregnancies. If the patient would have had a diagnosed unruptured ectopic pregnancy located in a more proximal segment of her fallopian tube, treatment using methotrexate would have been considered to preserve her only remaining fallopian tube.⁹ Another surgical option would have been to perform a salpingostomy. However, as with many gynecologic surgical procedures,¹⁰ the risk of adhesion formation with salpingostomy may be increased in a previously anastomosed fallopian tube. As noted in the photo of the unruptured fimbrial ectopic pregnancy (**Figure 1**), laparoendoscopic surgery was the minimally invasive diagnostic and treatment procedure of choice in this case, which salvaged the patient's remaining viable fallopian tube. The patient was extensively counseled that her tubal-saving procedure carries a significant risk of future infertility as well as a repeat ectopic pregnancy in that fallopian tube.

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